of minute filaments indistinctly septate, over which is spread a network of longitudinal fibres. No fructification has hitherto been detected. There can be little doubt of the lichenoid nature of this plant, the structure being similar to that of *Cœnogonium*. (See Karsten's Paper in Ann. Nat. Hist. ser. 3. vol. viii. p. 203, pl. 11.)

Plate IV. fig. 16. Filament, magn. 330 times linear.
fig. 17. Filament, magn. 1200 times linear.

Chroolepus Arnottii, Hook., of which I have an authentic specimen gathered "Kinross-shire, July 7, 1837," approaches these plants in external aspect; but the microscope shows it to consist of branched filaments of spherical cells, of a rich chocolate-brown, tapering towards the extremities, where a distinct conjugation may be seen.

Plate IV. fig. 18. Filament, magn. 330 times linear.
fig. 19. Conjugation at extremity of filament, magn. 330 times linear.
fig. 20. Conjugation, magnified 660 times linear.

Lichina pygmæa, Ag. (Leight. Lich. Brit. Exs. 260) is beautifully represented in Grev. Scott, Crypt. t. 219, and its microscopic details in Tulasne's Mém. Lich. tab. 9. figs. 1–6.

Mount's Bay, Cornwall (*J. Ralfs, Esq.*!) may be recorded as an additional habitat.

Plate IV. fig. 21. Sporidium, magn. 1200 times linear.

Lichina confinis, Ag. This Lichen is also beautifully given in Grev. Scott, Crypt. t. 221, and in Tulasne, *l. c.* tab. 10. figs. 12–18.

Mount's Bay, Cornwall (*J. Ralfs, Esq.*!), and Black Stones, Conway Bay, Caernarvonshire! June 1856, are additional habitats.

Plate IV. fig. 22. Sporidium, magn. 1200 times linear.

Pterygium centrifugum, Nyl. Syn. 92; Arnold, Lich. Juras. Exs. 159, may probably be found on our limestone-rocks.

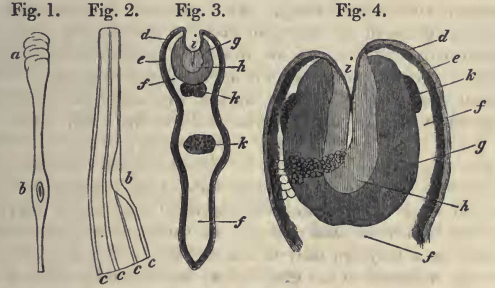
The scales on the Plate are the $\frac{1}{100}$th of an inch, magn. 330, 660, and 1200 times linear.

III.—*On the Gland of the Phyllodium of* Acacia magnifica.

By the Rev. W. A. Leighton, B.A., F.B.S.E.

My attention has been attracted to a plant of *Acacia magnifica* when in blossom. On the upper edge of the vertical phyllodia (for the plant has no true leaves) subtending the showy spikes of yellow flowers, which proceed from their axils, appeared a pellucid drop of liquid, varying in size from that of a large pin's head

to that of a grain of mustard-seed. This to the taste was sweet and sugary. The flowers themselves had no odour, except towards nightfall, when they gave out a weak disagreeable smell, only perceptible on close contact. On wiping off the sugary secretion, it was observed that it proceeded from a small sunken linear-oblong orifice or slit, surrounded by a swollen margin. The phyllodium itself is attached to the branch by a swollen base, the surface of which is curiously marked by shallow rimæ, alternately arranged, halfway round the base. From this swollen portion the base tapers gradually, and becomes much narrower, until, about a quarter or half an inch from the branch, the phyllodium expands into a fusiform swelling, on the centre of which the above linear-oblong orifice is situated. From this fusiform swelling the phyllodium tapers to its uniform thickness. These appearances are seen on looking down on the upper edge of the phyllodium from above, and are represented in fig. 1,



where *a* is the swollen rimose base, *b* the fusiform expansion bearing the orifice. Fig. 2 represents a lateral view of the same, where *b* is the situation of the glandular orifice, and *c* the large bundles of vascular and spiral tissue, which proceed in a parallel direction to the apex of the phyllodium. On making a vertical section of this basal part of the phyllodium transversely through the glandular orifice, the section, in a dry state, shows the appearances represented in fig. 3. Externally there is the bright-yellow epidermis, with a layer of large cells immediately underneath, containing chlorophyll; then similar large cellular tissue, of a white colour and loose in texture; then a denser cellular tissue of much smaller cells of a white colour, which is continued towards the central slit of the gland, but becomes of a pale yellow or slightly tawny colour, probably from the very minute granular contents. Dilute sulphuric acid and weak solution of

iodine produced no change of colour in any of these parts. On moistening the section with water, the external lips of the orifice become swollen and partially closed, the slit alone being visible, as seen, more highly magnified, in fig. 4 (where the same letters indicate the same parts as in fig. 3, viz. *d*, epidermis; *e*, chlorophyll-cells; *f*, loose white cellular tissue; *g*, dense white cellular tissue; *h*, dense yellow cellular tissue; *i*, glandular slit; *k*, bundles of vascular and spiral vessels). Here it is seen that the epidermis ceases somewhat above the base of the slit, where apparently the cellular tissue is exposed, and from which surface the pellucid liquid is excreted.

The plant began to blossom on the 27th of March, and was then removed from the green-house into the drawing-room, where the secretion immediately attracted my attention. I myself watered the plant every morning; and thus it was daily, and, indeed, many times every day, under my constant observation; and the secretion was pointed out to members of my family and to many friends almost daily. As I proposed to investigate the source and cause of the secretion with the microscope, I carefully watched it day by day, and am thus able to state definitely that the liquid drop was visible on the upper edge of every phyllodium subtending a spike of flowers during the whole time the plant continued in flower, viz. from March 27 to April 22. For a few days previous to April 22, the secretion appeared to decrease and partially to cease on some of the phyllodia. On April 23 the blossoms began to wither and fall. On the 24th the blossoms fell more rapidly and abundantly; and, to my surprise, there was an almost total cessation of the secretion, which now appeared on a very few only of the phyllodia. On the 24th the plant was returned to the greenhouse, and since that day to the present time (May 30), although the plant has been watched carefully for this express purpose, not the least secretion has taken place, and the orifice of the gland appears to have become partially filled up or obliterated.

Here observation ends; but, on beholding such a curious structure, the mind naturally speculates—but in vain—How is this secretion effected? Nature does not disclose her vital forces. We then turn to the probable end to be effected by such a provision; and here conjecture may be possibly more successful. The secretion takes place only during the period that the plant is in blossom. So soon as the flowers fade and begin to fall, the secretion ceases and disappears. It would seem then to be in some way or other connected with the fertilization of the flower; and as, when the secretion becomes excessive, it falls and blotches the lateral expansion of the phyllodium, it is probably to attract insects to effect this. It is right, however, to

confess that no insects were observed to alight on the plant; but this may be owing in some measure to the early season of the year at which the plant blooms in this country, or to its having been taken from the green-house into a drawing-room, where the windows were generally closed; or, what is still more probable, that British insects are not the same as Australian, and have not the same habits; for it seems almost evident that it would require an insect of some considerable size and of some peculiar structure and habits to remove and apply the pollen, the secretion not being in the blossom itself, but at a short distance from it, on the phyllodium.

However, none of the flowers were fertilized; but it was remarked that the styles became elongated to nearly double the length of the stamens, particularly towards the time of the fading and falling of the blossoms. The thought readily arises, Is this another instance of dimorphism? and is there another plant, with short-styled stigmas, or with some other peculiar structure, adapted and necessary for the perfect fertilization? This, future and further observation may verify; but it appears highly suggestive of a fine field of research to those who possess or have access to large collections of *Acaciæ*. The fact of some *Acaciæ* fruiting abundantly in greenhouses, and others rarely or never, has often attracted attention; and artificial fertilization would do much towards ascertaining whether it is to the absence of insect agency that the sterility of the plants is due.

An intelligent nurseryman here informs me that he has never observed the plant to form legumes, or, at all events, other than abortive ones. He says the plant was originally raised at Ghent, from seed from Australia, and that that place is the great mart where it is propagated by cuttings, and imported into this country.

The microscopist will find the stamens, and indeed every portion of the floral whorls, beautiful and interesting objects, as, from their extreme transparency, the cellular tissue and the spiral vessels are distinctly displayed, without any dissection or other preparation than being placed in a drop of water.

IV.—*On the Nomenclature of the* Foraminifera. By W. K. Parker, F.R.S., T. Rupert Jones, F.G.S., and H. B. Brady, F.L.S., F.G.S.

[Plates I., II., III.]

Part X. (continued).—*The Species enumerated by D'Orbigny in the 'Annales des Sciences Naturelles,'* vol. vii. 1826.

III. *The Species illustrated by Models.*

Previously to the publication of his "Tableau Méthodique des